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NEW USSR STANDARDS FOR TOOLS, FITTINGS,
BEARING COLLARS, INDICATORS, AND CIRCULAR SAWS

CLASSIFICATIONS, CONVENTIONAL DESIGNATIONS
FOR MACHINE-BUILDING TOOLS, ATTACHMENTS

On 30 May 1950, the State All-Union Standards "Tools and Attachments for Machine Building; Classification and Conventional Designations" (GOST 5446-50, 5453-50) were approved and recommended for the period ending 1 January 1952. The purpose of the present article is to acquaint the machine builder with the basis of the classification and the system of conventional designations. Such a system has special significance in connection with the growth of production cooperatives. It eliminates a number of difficulties that arise when orders are sent, or when the production of items is transferred from one enterprise to another.

Unified classification facilitates centralized manufacture and supply of standard and special tools, lowers the cost of preparing for production, shortens the production cycle, and makes it easier to organize the production of new items.

The new standards include the classification and conventional designations of tools and attachments for hot working of metals, machining of metallic and nonmetallic materials, and pressure working of metals; and of auxiliary tools and attachments for machine-tool and hand operations, including measuring and checking operations.

The standards cover all tools and attachments used in machine-building plants, regardless of the character and scale of production. They give the conventional designations of type specifications for tools and attachments unified and standardized by departments or plants and also for special tools and attachments. A system for designating the dimensions of all categories of tools and attachments is given in the standards.

In working out the classification, provision was made for including it in the general classification system of the industry. Its highest level is the group, and the highest levels usually existing in each classification (class and higher), are left unchanged.

The part of the classification describing the utilization and design of the tool or fitting has five degrees: (1) groups; (2) subgroups; (3) sorts; (4) varieties; and (5) types.

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The "group" indicates the general purpose of the tool or attachment (processing, measuring, setting up). Tools for processing are grouped according to a symbol indicating their purpose and the method of processing (hot working, cold working by pressure, cutting).

The "subgroup" indicates the purpose of the tool or attachment in the production process (tools for turning, milling, drilling).

The "sort" characterizes the basic design form of the tool (lathe-cutting tool held in a tool post, side milling cutter).

The "variety" indicates particular design characteristics (three-sided, one-piece side-milling cutter).

The "type" completes the technical specification of the design (three-sided, one-piece, side-milling cutter with skew teeth).

The last three numerals of the conventional designation indicate the dimensions (in type-sizes) of the tool or fitting.

For example, in the conventional designation 22402-002, the first figure, 2, indicates the group (metal-cutting tool); the second 2 indicates the subgroup (milling cutter); 4 denotes the sort of milling cutter (side); 0 indicates the variety of milling cutter (left, three-sided), and the fifth figure 2 denotes the type of milling cutter (with skew teeth). The last three figures indicate the dimensions in type-sizes. Thus, it is possible to indicate 1,000 type-sizes of milling cutters for each type of cutter. A system of numeration based on increasing basic dimensions of the tool or attachment is used for classification.

Uncompleted classifications, using the first three or four digits of the type specification, are permissible for tools and attachments whose technical specifications have not been fully worked out. In such cases, all eight places of the conventional designation are retained, even though only the first three or four digits are used. For example, classification up to sort would take the form 224-00000, where 224 designates the type specifications and 00000 indicates the dimensions. Classification up to variety would take the form 2240-0000, where 2240 indicates the type specifications and 0000 the dimensions. In these cases, the fourth and fifth places, left free because of the incomplete type specifications, are used for dimensions.

To indicate departmental norms in the above designations, a letter is added at the left to denote the ministry (e.g., A-22402-002), or three letters are added to indicate ministry and plant (e.g., ABV-22402-002), in which A indicates the ministry and BV, the plant.

To distinguish special tools from standard tools put out by the plants, the type-size part of the designation (the last three digits) is divided into separate sections which indicate standard and special tools. Thus, the designations ABV-22402-000 to ABV-22402-700 may be set aside for standard tools, while the designations from ABV-22402-701 to ABV-22402-999 may be reserved for special tools.

A letter is added at the right of the designation to indicate the type of material used to make the tool. Thus, U indicates carbon steel, L indicates alloy, B indicates high-speed steel, and T denotes hard alloy. The designation 22402-002 B denotes a milling cutter of high-speed steel of the design described above. The use of generally accepted material designations such as 22402-002 RFl, is also permissible.

The kind of fit and degree of accuracy are denoted by a symbol at the right; e.g., 81210-020 S₃, where S₃ indicates a sliding fit of third class accuracy.

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Full conventional designations are also given for composite tools and tool sets. For example, a set of milling cutters is given the designation ABV 229-00006 (uncompleted classification). The individual tools that make up the set are designated according to the classification: side milling cutter, ABV 22410-027; radius milling cutter, ABV 22645-005; and arbor, ABV 62240-504.

Components of tool sets or composite tools which do not have a designation according to the classification are given the number of the assembled tool, followed by a slash and the number of the part in the assembled tool. In the designation A 76720-005/1, the 1 indicates that this is the first part of the assembled tool. If a given specialized part is found in two or more type-sizes of tool or attachment, it is given the designation of the smaller size tool or attachment.

Common machine-building parts for which a GOST already exists are given a full conventional designation according to the corresponding GOST. -- Engineer K. N. Krutyakov

NEW STANDARDS FOR BEARINGS, MEASURING TOOLS, AND METALLURGICAL EQUIPMENT

Bearings

Mounting collars for ball and roller bearings. Types and sizes (GOST 5557-50). This standard replaces OST 26001 and covers mounting collars for radial ball and roller bearings.

The standard covers three types of collar: Type I, for bearings of light series 11200; Type II, for bearings of light wide series 11500, 13500, and medium series 11300; and Type III, for bearings of medium wide series 11600 and 13600.

The basic dimensions of 27 collar sizes, from No 17 to No 180, are established by the standard.

OST 26001 was limited to machined mounting collars, but the new standard covers collars made from sheet steel by cold stamping. Adoption of the new standard thus contributes to savings in metal and a drop in the production cost of collars. The standard was put into effect 1 January 1951.

Measuring Instruments

Geared-lever indicators with 0.01 millimeter graduations. Technical specifications (GOST 5584-50). This standard is established for the first time and covers indicators with geared-lever drive, scales graduated to 0.01 millimeter, and sleeve diameters of 14 millimeters.

The standard describes dimensional and connecting sizes of indicators, technical specifications, marking, and packaging. The limits of measurement of the indicator are from 0 to 1 millimeter.

The measuring lever of the indicator should rotate on its axis to any angle under 180 degrees with a force of 400-1,000 grams. The measuring force of the indicator should be between 50 and 150 grams. Allowable error of the indicator readings on any part of the scale is 0.007 millimeter per millimeter, or 0.015 millimeter for readings greater than a millimeter. By the error of the indicator reading is meant the sum of the greatest positive and negative errors recorded on a given section of the scale during the forward and backward motion of the measuring lever. The measuring line in the center of the section of scale checked should be perpendicular to the axis of the measuring lever. Vibration of the indicator reading should not exceed 0.003 millimeters.

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The standard stipulates that the acceptance and testing of indicators should be carried out according to the instructions of the Committee on Measures and Measuring Instruments under the Council of Ministers USSR. The standard goes into effect 1 July 1951.

Machines and Equipment for the Metallurgical Industry

Rolling mills. Circular sawing machines (sliding-carriage type). Basic dimensions (GOST 5579-50). This standard is established for the first time and covers circular sawing machines with guide carriages used for cutting off the ends and cutting apart irregular profile, rectangular, and circular stock which is still hot after rolling.

Nominal diameters [of the saw blades] have been set at 1,000, 1,200, 1,500, 1,800, and 2,000 millimeters. The smallest corresponding diameters after sharpening have been set at 900, 1,080, 1,350, 1,620, and 1,800 millimeters. The distance that the sliding carriage travels, the distance from the center of the saw blade to the upper edge of the table roller, the diameter of the saw-blade re-tainer, and the dimensions of the metal cut have also been established. The distance from the center of the saw blade to the table roller selected permits the removal of 10 percent of the external diameter of the saw blade in sharpening, and also makes it possible to set the saw blade 40-50 millimeters below the upper edge of the table roller to facilitate cutting of the metal. The series of type-sizes of the most widely used saws delimited by the standard eliminates arbitrary choice of dimensions during planning and operation. The standard went into effect on 1 January 1951.

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